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PENNSYLVANIA

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Chesapeake Technical Support Laboratory
Middle Atlantic Region
Federal Water Pollution Control Administration
U.S. Department of the Interior

1968 Data Report

WATER QUALITY SURVEY OF THE POTOMAC ESTUARY

by

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was conducted
During the year 1968 a monthly survey/of the estuary portion of the Potomac River and one intensive during the summer. This was done to determine existing water quality. The results of these investigations are presented in this report.

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I INTRODUCTION

A. Purpose and Scope

During the year of 1968 the Chesapeake Technical Support Laboratory, Middle Atlantic Region, Federal Water Pollution Control Administration conducted a monthly survey of the estuary portion of the Potomac River and one intensive during the summer. This was done to determine existing water quality. The results of these investigations are presented in this report.

B. General Remarks

The monthly nutrient survey was conducted from May through December and a three-day bacteriological and nutrient intensive was made August 20-22. The intensive survey included examination of effluent and influent water of ten sewage treatment plants discharging into the Potomac estuary. A special nutrient run was made on September 11th of the lower part of the Potomac River from the Route 301 Potomac River Bridge to Point Lookout.

C. Sampling Procedures

Surface samples for chemical analysis were obtained by dipping a plastic bucket or large funnel into the river water with a minimum of agitation. Samples were retained in plastic one-gallon "cubitainers." Dissolved oxygen (DO) samples were obtained by siphoning from the bucket or by attaching a tube to

the funnel outlet and extending it to the bottom of a conventional 300 ml DO bottle. The bottle was overfilled twice without excessive agitation, and the DO fixed immediately. Temperature was measured in the dipped bucket immediately after sampling.

Bottom samples were taken using a plastic Van Dorn sampler. Sampling procedures were otherwise identical to those used for surface samples. All samples were stored on ice. Analysis was started immediately on return to the Chesapeake Technical Support Laboratory, generally within two hours of sampling.

All bacteriological samples were obtained by dipping a sterile sample bottle directly into the stream. The full bacteriological sample bottle was then capped and iced.

D. Measured Parameters and Analytical Methods

1. Water temperature was determined using a Salinometer during the intensive survey. A mercury thermometer was used at all other times inserted into the sample container immediately upon collection.

2. Light extinction, in inches, was made with a 12" (30 cm) white Secchi disk.

3. pH

The pH measurements were made with a field pH meter.

4. Dissolved Oxygen

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Dissolved Oxygen was determined by the azide modification of the basic Winkler method with the titration done potentiometrically with a Fisher automatic "titralyzer."

5. Biochemical Oxygen Demand

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The Biochemical Oxygen Demand was determined by the azide modification of the basic Winkler method with the titration done potentiometrically with a Fisher automatic "titralyzer." The samples as received were diluted if necessary and transferred to standard 300 ml BOD bottles in triplicate. One initial DO and two final DO determinations were used throughout. Incubation was started immediately at 20°C and continued for five days after which they were titrated.

6. Total Phosphorus

Reference: Menzel, D.W. and Corwin, N. 1965. The Measurement of Total Phosphorus in Seawater Based on the Liberation of Organically Bound Fractions by Persulfate Oxidation. Limonology and Oceanography, 10: 280-282.

Murphy, J. and Riley, J.P. 1962. A Modified Single

Solution Method for the Determination of Phosphate in Natural Waters. Analytica Chimica Acta, 27: 31-36.

Total Phosphorus was determined after persulfate oxidation of the sample in an autoclave at 15 psi for 30 minutes. The resultant ortho-phosphate was then determined colorimetrically as the molybdenum-blue complex with the optical density measured at 882 mμ.

7. Total Kjeldahl Nitrogen

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Total Kjeldahl Nitrogen includes ammonia and organic nitrogen and was determined by the standard micro-kjeldahl procedure. The sample was digested in the presence of strong acid to convert the organic nitrogen to ammonia. The ammonia was then distilled, collected in boric acid solution, nesslerized and determined colorimetrically.

8. Nitrate + Nitrite

Reference: A Manual of Sea Water Analysis, J.D.H. Strickland and T.R. Parsons, 2nd. ed., Queen's Printer and Controller of Stationery, Ottawa, Canada, 1965.

Nitrate plus Nitrite nitrogen was determined by the cadmium reduction of nitrate to nitrite and subsequent diazotization with sulphanilamide and N-(1-napthyl)-ethylenediamine dihydrochloride. The results were calculated as nitrite nitrogen.

9. Ammonia

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The water samples as received were adjusted to a pH of 7.2 - 7.4.. An aliquot portion was distilled collecting the distillate in 2% boric acid. An aliquot of the distillate was nesslerized and read on a spectrophotometer at 425 mμ. The results were calculated as NH_3-N.

10. Chlorophyll

Reference: A Manual of Sea Water Analysis, J.D.H. Strickland and T.R. Parsons, 2nd. ed., Queen's Printer and Controller of Stationery, Ottawa, Canada, 1965.

Chlorophyll a was determined by extraction of millipore-filtered samples in 90% acetone and read spectrophotometrically.

11. Turbidity

Turbidity was determined with a Hach photoelectric nephelometer, calibrated in Jackson Turbidity Units.

12. Total Organic Carbon

Reference: Beckman Instruments, Bulletin 4059.

Total Organic Carbon was determined with a Dow-Beckman Carbonaceous Analyser.

13. Nonfiltrable Residue

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

The Nonfiltrable Residue was determined by filtering a known volume of sample. A predried and weighed Gelman Type A glass fiber filter was used. The filter and its contents were then dried in an oven at 105°C, cooled and reweighed. The gain in weight represents Nonfiltrable Residue.

14. Coliform

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Coliform population was determined using the 5 tube-3 dilution Multiple-Tube Fermentation Technique. Lauryl sulfate tryptose broth was used for the presumptive test with incubation at 35° ± 0.5°C. Brilliant green lactose bile broth was used for the confirmatory test with incubation at 35° ± 0.5°C. The results were reported as the Most Probable Number (MPN).

15. Fecal Coliform

Reference: Standard Methods for the Examination of Water and Wastewater, 12 ed., 1965.

Water Pollution Control Research Series, WP-20-3.

Fecal Coliform population was determined using the 5 tube-3 dilution Multiple-Tube Fermentation Technique.

Lauryl sulfate tryptose broth was used for the presumptive test with incubation at 35° ± 0.5°C. EC medium was used for the confirmatory test with air incubation at 45.5° ± 0.5°C. Thr results were reported as the Most Probable Number (MPN).

II STATION LOCATIONS

0	South Capitol Street Bridge - Anacostia River
1A	Fletcher's Boathouse
1	Key Bridge
2A	Roosevelt Island
2B	Memorial Bridge
2	14th Street Bridge
3A	Potomac Park
3	Haines Point
4	Bellevue
4A	Above Blue Plains
4B	Opposite Blue Plains
4C	Below Blue Plains
5	Woodrow Wilson Bridge
6	Broad Creek
7	Piscataway Creek
8	Dogue Creek
9	Hallowing Point
10	Indian Head
11	Possum Point
12	Sandy Point
13	Smith Point

14	Maryland Point
15	Nanjemoy Creek
16	Potomac River Route 301 Bridge
18	Kettle Bottom Shoals
19	Wicomico River
20	Kingcopisco Point
21	Ragged Point
22	Piney Point
23	Point Lookout
24	Smith Point
25	Point Lookout
	Alexandria STP
	Arlington STP
	Andrews Air Force Base STP #1
	Andrews Air Force Base STP #4
	Blue Plains STP
	Fairfax STP - Dogue Creek
	Fairfax STP - Little Hunting Creek
	Fairfax STP - Westgate
	Fort Belvoir STP #1
	Fort Belvoir STP #2
	Pentagon STP
	Piscataway STP

III SURVEY RESULTS

1968
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
POTOMAC ESTUARY SURVEY

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chlorophyll a µg/l	Turbidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
South Capitol Street Bridge - Anacostia River - Station O																			
68082010	8-20	0926	Surface	28.8		14	6.9	460,000	93,000					32.25					9.4
			15	28.8												1.33		5.40	
25		1815	Surface	29.6		18	7	150,000	21,000	4.23	1.216	.345	.400	10.00					8.1
			13	29.1												2.35		7.10	
35	8-21	0022	Surface					43,000	9,300					15.75					7.9
			12	29												1.81		8.28	
2110		1125	Surface	29		24		93,000	24,000					24.00					7.8
			13	30.5												.99		4.06	
25		1750	Surface	30.5				43,000	24,000	.347	.692	.362	.392	24.75					7.7
			13	29.5												1.75		5.54	
35	8-22	0030	Surface	29				24,000	23,000					29.25					7.1
			12													1.06		5.50	
2210		1015	Surface	30		24		9,300	4,300					36.00					7.4
			13													1.68		4.54	
25		1800	Surface	30.5		16		43,000	7,500		1.321	.306	.572	30.75					8.6
			10	30.3												2.36		4.82	
35	8-23	0055	Surface	29.5				4,300	4,300					33.00					7.7
			13	29												1.92		4.26	
Fletcher's Boathouse - Station 1A																			
68062521	6-24	1750		28.2						.243	.407	.143	.187	6.00	21				
070921	7-08			28.7		22				.211	.741	ND	.095	66.00	12	8.6 *		NR*	
2221	7-22	1754		30.4		25				.423	.930	.013	.015		9.8	8.8 *		3.0 *	
080621	8-05			29.1		24					.537	.040	.285	63.00		8.0 *		3.9 *	
1921	8-19	1752		29						.305	1.180	.021	.590	28.50	10.5				
091021	9-09	1758		24.9						.348	.829	.009		52.50	11				
2421	9-23	1745		24						.357	ND	.192		44.25	7	9.5 *		1.6 *	6.1
100821	10-07	1755		18						.219	.488	.050		44.25		9.0 *		2.4 *	
110416	11-04	1355		12.7						.250	.731	.058		47.25	11	10.8 *		3.7 *	7.8
123016	12-30	1330		1.7						.259	.165	1.502		ND		16.9 *		3.1 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
ND Not detectable
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
							Key Bridge - Station 1												
68051615	5-16	1145		18.5	18					.166		.550	.213	15.00	5.3	7.96	7.47	3.53	
061018	6-10	1720		26.6		28				.205	LA	LA	.050	75.00	LA	9.4 *		3.6 *	
2520	6-24	1727		27.8		22				.068	.360	.828	.036	8.25	14				
070920	7-08			29.5		22				.239	1.081	ND	.058	72.75	13	9.9 *		NR *	
2220	7-22	1745		30.3		24				.466	1.285	.028	.007		6.9	10.1 *		7.9 *	
080620	8-05			29.2		24				.488	.488	.004	.044	51.75		8.6 *		3.1 *	
1920	8-19	1728		29						.196	.771	.006	.168	29.25	7.5				
2009	8-20	0955	Surface	27.5		14	6.95	4,300	2,400					46.50					8.75
			15	27.2															
24		1750	Surface	28.9		18	7.3	2,400	2,400	.229	.722		.145	29.25		4.63		3.26	
			10	27															6.8
34	8-21	0053	Surface					2,400	230					30.00		5.45		4.16	
			10	27.5															4.9
2109		1100	Surface	28		24		1,500	430					32.25		6.37		4.52	
			10	29															6.6
24		1825	Surface	28				1,200	91	.214	.974	.074	.138	41.25		6.12		4.02	
			10	27.8															5.6
34	8-22	0115	Surface	27.5				430	430					36.75		6.39		3.46	
			10																6.2
2209		1045	Surface	28		26		430	150					92.20		6.32		4.04	
			10																7.2
24		1845	Surface	29.9		24		24,000	2,400		1.308		.286	89.25		6.24		4.90	
			12																7.6
34	8-23	0025	Surface	28				430	73					25.50		5.71		3.16	
			10	28															7.6
091020	9-09	1737		25.4						.290	.610	ND		51.00	12	8.62		4.48	
2420	9-23	1712		24						.232	ND	.200		30.75	6.9	8.3 *		1.4 *	5.8
100820	10-07	1735		18.3						.183	.783	.014		33.00		9.7 *		7.4 *	
110415	11-04	1335		12.4						.245	.566	.064		62.25	6	11.2 *		3.0 *	6.7
123015	12-30	1310		1.8						.263	.285	1.388		ND		14.9 *		3.1 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident
ND Not detectable
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l' PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Roosevelt Island - Station 2A																			
68062519	6-24	1710		27.8		24				.167	.627	.617	.014	5.25	12				
070919	7-08			28.9		22				.246	.877	ND	.044	84.00	12	10.5 *		NR	
2219	7-22	1734		30.5		30				.474	1.081	.167	ND		7.3	10.8 *		5.1 *	
080619	8-05			29.6		23					.654	.021	.037	43.50		8.4 *		2.2 *	
1919	8-19	1710		30						.174	.789	ND	.117	19.50	7.1				
091019	9-09	1725		25.1						.285	.530	ND		136.50	13				
2419	9-23	1712		25.5						.349	ND	.249		68.25	4.2	13.2 *		5.3 *	6.5
100819	10-07	1720		19						.228	.596	.073		27.75		8.1 *		4.7 *	
110414	11-04	1325		11.8						.604	.777	.040		36.75	7.5	11.2 *		3.1 *	9.2
123014	12-30	1300		1.8						.207	.228	1.367		ND		14.5 *		3.0 *	
Memorial Bridge - Station 2B																			
68061017	6-10	1655		26.3		27				.203	.59	.454	0	69.75	LA	9.3 *		.4 *	
2518	6-24	1700		28.4		23				.198	.247	.891	.079	7.50	13				
070918	7-08			29		24				.231	.939	ND	.117	41.25	9	11.2 *		ND*	
2218	7-22	1725		30.3		22				.460	.878	.027	.037		7	9.3 *		3.7 *	
080618	8-05			29.3		21					.475	.023	.227	48.00		7.0 *		3.4 *	
1918	8-19	1650		30						.220	.948	.016	.364	16.50	8.6				
091018	9-09	1716		25.1						.292	.665	.015		46.50	14				
2418	9-23	1700		25.5						.333	ND	.264		41.25	7.4	11.7 *		4.3 *	5.0
100818	10-07	1710		18.9						.278	.458	.179		27.00		6.9 *		3.3 *	
110413	11-04	1315		11.8						.214	.583	.314		72.75	6.5	12.4 *		3.0 *	7.8
123013	12-30	1250		1.9						.268	.424	1.550		ND		14.8 *		2.9 *	
14th Street Bridge - Station 2																			
68051614	5-16	1125		19	18.5					.226		.433	.280	8.25	11	6.84	6.88	3.83	
061016	6-10	1645		26.1		24				.194	.74	.536	.100	54.00	23	2.2 *		9.0 *	
2517	6-24	1650		27.1		20				.252	.587	.362	.014	5.25	13				
070917	7-08			27.9		24				.256	LA	.199	.102	72.75	14	9.6 *		NR *	
2217	7-22	1706		30.4		20				.629	1.477	.087	.265		12	4.6 *		4.6 *	
080617	8-05			29.2		15					.605	.043	.380	42.00		5.1 *		2.6 *	
1917	8-19	1635		30						.345	1.260	.040	.510	18.00	12				

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident
ND Not detectable
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
								14th Street Bridge - Station 2 - continued											
68082008	8-20	0942	Surface	27		24	6.8	460,000	43,000					32.25					7.0
			15	26.5												2.75		4.14	
23		1740	Surface	27.4		18	7.4	93,000	4,300	.292	.698	.069	.138	20.25					8.6
			10	27.3												4.57		4.42	
33	8-21	0040	Surface					43,000	24,000					18.00					5.2
			10	27												4.07		4.06	
2108		1045	Surface	27		24		15,000	15,000					15.75					6.2
			10	28.5												5.52		3.74	
23		1805	Surface	27.8				9,300	9,300	.260	1.295	.064	.188	47.25					5.1
			10	27.7												5.48		5.16	
33	8-22	0100	Surface	27				43,000	7,500					39.00					7.4
			10													5.78		4.30	
2208		1030	Surface	28		22		24,000	24,000					57.00					5.7
			10													4.85		3.82	
23		1835	Surface	28.1		18		23,000	910			.093	.191	41.25					6.6
			10	27.7												5.48		3.08	
33	8-23	0010	Surface	27				9,300	4,300					56.25					7.2
			10	27.5												6.51		4.70	
091017	9-09	1700		25						.351	.774	.037		30.75	24				
2417	9-23	1650		24.8						.308	.599	.240		33.75	4.9	10.0 *		3.9 *	3.75
100817	10-07	1659		19.4						.211	.729	.081		25.50		7.0 *		2.3 *	
110412	11-04	1257		11.7						.217	1.080	.060		71.25	11	12.1 *		3.2 *	6.7
123012	12-30	1240		1.8						.264	.348	1.502		1.50		14.5 *		3.0 *	
								Potomac Park - Station 3A											
68062516	6-24	1643		28.5		19				.196	.494	.605	.065	7.50	18				
070916	7-08			28		15				.302	1.047	.203	.109	78.75	15	10.0 *		NR *	
2216	7-22	1655		30.3		18				.624	1.169	.084	.353		12	4.9 *		3.1 *	
080616	8-05			29.4		20					.765	.282	.292	52.50		5.0 *		5.0 *	
1916	8-19	1625		30						.325	1.187	.057	.350	15.00	14				
091016	9-09	1650		25.5						.611	1.067	.245		29.25	23				
2416	9-23	1640		25.5						.387	.078	.273		35.25	9	9.1 *		2.0 *	3.75
100816	10-07	1650		19.4						.228	.386	.163		19.50		7.3 *		2.4 *	
110411	11-04	1245		12.5						.256	.480	.041		99.75	13	12.9 *		4.6 *	8.6
123011	12-30	1228		1.6						.467	.627	1.495		.75		14.4 *		3.2 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	Bottom	BOD mg/l	TOC * Initial
								Haines Point - Station 3											
68051613	5-16	1110		19.5	19					1.277		.329	.964	3.00	8.2	3.89	3.55	11.32	
061015	6-10	1625		26.8		22				.261	.90	.406	.025	66.75	34	10.6 *		2.4 *	
2515	6-24	1635		24.3		19				.230	LA	.439	.036	6.00	23				
070915	7-08			28		12				.322	1.061	.380	.168	63.75	22	7.5 *		NR*	
2215	7-22	1646		30.5		12				.807	1.605	.150	.390		17	4.8 *		3.1 *	
080615	8-05			29.3		18					1.074	.644	.592	85.50		5.0 *		5.0 *	
1915	8-19	1609		30						.638	1.792	.184	.751	21.00	12				
2007	8-20	0917	Surface	27.3		15	6.9	240,000	46,000					36.75					8.2
			15	26.6												3.96		3.54	
22		1730	Surface	27.8		18	7.4	9,300	1,500	.442	1.174	.108	.392	21.75					12.4
			8	27.6												5.09		4.98	
32	8-21	0013	Surface					43,000	9,300					20.25					5.85
			7	29												4.54		4.92	
2107		1035	Surface	28.5		24		24,000	24,000					16.25					7.35
			8	28.8												4.09		4.16	
22		1740	Surface	28.2				460,000	460,000	.916	2.090	.158	1.090	16.50					5.8
			5	28.2												4.05		5.94	
32	8-22	0015	Surface	29										18.00					7.5
			8													5.68		4.52	
2207		1005	Surface	28.5		24		43,000	43,000					44.25					8.2
			10													2.40		4.36	
22		1740	Surface	28.2				460,000	460,000	.916	2.090	.158	1.090	16.50					5.8
			10	28.2												4.05		5.94	
32	8-23	2355	Surface	28.5				9,300	9,300					39.75					7.1
			8	28												5.67		6.60	
091015	9-09	1640		25.7						.882	1.189	.526		55.50	14				
2415	9-23	1630		26						1.138	.287	.059		42.75	8.5	7.9 *		2.9 *	6.1
100815	10-07	1640		19.2						.532	.759	.540		36.75		7.8 *		3.4 *	
110410	11-04	1240		13.3						.460	.166	.030		84.00	12.5	11.9 *		4.5 *	9.3
123010	12-30	1222		1.3						.191	.310	1.505		.75		14.3 *		3.1 *	
								Bellevue - Station 4											
68051612	5-16	1100		19.5	19					1.462		.325	1.305	3.00	11	2.11	2.21	11.52	
061014	6-10	1615		26.7		18				.276	.65	.444	.050	59.25	35	10.1 *		3.6 *	
2414	6-24	1627		27.3		14				.307	.553	.105	.022	9.00	31				
070914	7-08			29.1		18				.478	1.408	.397	.386	56.25	24	6.0 *		NR *	
2214	7-22	1630		30.5		15				.627	2.401	.084	1.507		10.5	5.5 *		4.5 *	
080614	8-05			29.5		17					1.321	.763	1.089	89.25		4.2 *		11.9 *	
1914	8-19	1357		30						2.440	3.162	.271	1.990	33.00	9				

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chlorophyll a µg/l	Turbidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Bellevue - Station 4 - continued																			
68082006	8-20	0907	Surface	27.4		14	6.9	150,000	46,000					69.00					9.1
			15	27.4												3.13		10.74	
21		1720	Surface	27.8		18	6.9	930,000	460,000	1.145	3.074	.309	1.766	49.50					11.8
			12	28.3												4.60		8.96	
31	8-21	0005	Surface					93,000	46,000					41.25					6.25
			12	28												4.68		5.86	
2106		1025	Surface	27		16		I	I					20.25					8.8
			12	29												3.17		7.82	
21		1725	Surface	28.2				93,000	46,000	1.588	2.115	.187	.931	39.75					6.25
			12	28.1												3.02		5.52	
31	8-22	0000	Surface	28				93,000	46,000					36.00					9.2
			12													4.53		6.02	
2206		0955	Surface	28		29		24,000	24,000					122.25					8.9
			12	27.2												.63		6.30	
21		1725	Surface	29.9		15		24,000	24,000		2.878	.213	.894	75.75					7.5
			13	27.9												3.02		5.52	
31		2350	Surface																
			12																
091014	9-09	1625		26.4						1.231	1.360	.909		65.25	23				
2414	9-23	1617		26						1.198	.287	.475		30.00	6.9	5.5 *		6.1 *	5.75
100814	10-07	1625		20.2						1.255	2.217	1.395		55.50		4.8 *		5.4 *	
110409	11-04	1235		14.7						.059	1.394	.050		59.25	13	8.7 *		4.7 *	10.9
123009	12-30	1210		1.8						.370	.437	1.530		ND		14.1 *		2.8 *	
Above Blue Plains - Station 4A																			
68061013	6-10	1605		26.6		20				.426	.75	.546	.175	47.25	28	9.3 *		3.2 *	
2513	6-24	1615		28.1		15				1.109	1.773	.643	.790	9.00	23				
070913	7-08			28		18				1.054	3.048	.470	1.837	44.25	19	7.1 *		NR *	
2213	7-22	1614		30.5		18				.849	2.924	.170	1.765		8.7	4.5 *		6.5 *	
080613	8-05			29.7		17					1.531	1.009	1.016	119.25		4.7 *		11.5 *	
1913	8-19	1545		30						2.116	3.560	.260	2.040	42.00	8.1				
091013	9-09	1612		26.5						2.137	2.171	1.060		84.75	10				
2413	9-23	1605		26.2						2.621	1.299	.390		33.00	3.5	2.5 *		3.4 *	6.7
100813	10-07	1615		19.8						1.734	1.584	1.791		63.00		3.1 *		7.2 *	
110408	11-04	1217		15						1.909	1.937	.035		56.25	7.5	6.6 *		4.9 *	17
123008	12-30	1159		1.8						.513	.532	1.388		2.25		13.8 *		2.3 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
ND Not detectable
NR No results
I Indeterminate

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
							Opposite Blue Plains - Station 4B												
68061012	6-10	1600		27.8		16				.405	.87	.618	.350	52.50	26	9.2 *		3.0 *	
2512	6-24	1605		27.7		16				.844	1.253	.828	.489	12.75	18				
070912	7-08			27.5		12				.716	1.680	.747	.678	39.00	25	4.5 *		NR *	
2212	7-22	1609		30.6		24				1.000	3.041	.183	1.816		7.5	2.5 *		3.7 *	
080612	8-05			30.2		16					1.753	.977	.746	178.50		4.2 *		12.2 *	
1912	8-19	1535		31						1.525	3.095	.342	1.837	42.75	11				
091012	9-09	1605		29.2						1.956	2.348	1.091		108.75	24				
2412	9-23	1600		26.5						1.802	.461	.519		40.50	7.4	3.5 *		3.8 *	5.1
100812	10-07	1605		22.2						2.479	2.139	1.525		79.50		5.8 *		11.2 *	
110407	11-04	1210		14.9						1.233	.823	.052		86.25	19	8.8 *		5.6 *	11.1
123007	12-30	1150		3.8						1.263	1.203	1.347		.75		12.5 *		2.7 *	
							Below Blue Plains - Station 4C												
68061011	6-10	1555		26.6		18				.315	.72	.546	.005	64.50	16	9.0 *		2.0 *	
2511	6-24	1600		28.4		16				.782	.174	.643	.266	10.50	19				
070911	7-08			28		22				.818	1.760	.544	.794	40.50	20	4.6 *		NR *	
2211	7-22	1552		30.9		30				1.060	3.360	.150	2.132		5.3	4.9 *		6.2 *	
080611	8-05			29.9		10					1.358	1.172	.848	126.75		3.2 *		12.1 *	
1911	8-19	1525		30						1.928	3.193	.659	1.567	55.50	11				
091011	9-09	1535		27.4						2.366	2.561	1.245		61.50	17				
2411	9-23	1545		26						2.087	.048	.425		27.75	6.2	3.0 *		4.9 *	5.5
100811	10-07	1550		19.9						2.479	2.223	1.557		61.50		4.4 *		9.2 *	
110406	11-04	1200		15.9						1.985	.034	.059		52.50	6.5	4.8 *		9.6 *	11.7
123006	12-30	1138		2						.803	.842	1.167		ND		13.5 *		3.4 *	
							Woodrow Wilson Bridge - Station 5												
68051611	5-16	1045		19.5	19					1.973		.290	1.849	3.00	12	.99	.37	9.64	
061010	6-10	1508		26.5		20				.358	.75	.486	.025	60.75	19	8.8 *		3.0 *	
2510	6-24	1440		27.5		18				.991	1.747	.726	.797	6.75	20				
070910	7-08			28		21				1.065	2.06	.455	1.261	25.00	20	5.9 *		NR *	
2210	7-22	1521		30.1		16				1.115	3.796	.233	2.625		7.1	1.7 *		4.0 *	
080610	8-05			29.8		18					.642	1.637	.651	162.00		2.0 *		11.8 *	
1910	8-19	1510		28						1.687	3.217	.623	1.669	45.75	10.5				

* Analysis run by the joint FWPCA-DC Pilot Plant
ND Not detectable
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chlorophyll a µg/l	Turbidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Woodrow Wilson Bridge - Station 5 - continued																			
68082005	8-20	0855	Surface	28		15	6.9	93,000	93,000					127.50					12.8
			15	27.8															
20		1640	Surface	29.5		12	7.7	75,000	75,000	1.173	2.568	.771	1.155	85.50		.71		10.56	13.55
			13	28.4															
30		2347	Surface					240,000	240,000					58.50		4.16		8.46	7.7
			13	29															
2105	8-21	1015	Surface	28		18		240,000	240,000					24.75		4.03		8.80	10.2
			13																
20		1700	Surface	28.3				93,000	93,000	2.211	2.904	.342	1.366	62.25		2.50		7.68	8.4
			13	28.2															
30		2345	Surface	29				930,000	460,000					39.00		3.08		6.48	6.8
			13																
2205	8-22	0945	Surface	28		14		15,000	7,300					288.25		1.99		10.56	11.3
			13																
20		1700	Surface	29.9		14		23,000	9,100		2.673	.361	1.078	75.75		3.00		6.30	9.05
			13	28.4															
30		2340	Surface	27.5				930,000	430,000					64.50		2.26		6.94	8.1
			13	28.5															
091010	9-09	1515		26.8						2.620	2.476	1.175		90.75	11				
2410	9-23	1500		26						2.798	1.443	.404		32.25	4	3.6 *		5.1 *	6.45
100810	10-07	1520		19.7						3.362	2.488	2.004		77.25		2.0 *		9.6 *	
110405	11-04	1135		15.7						2.127	.246	.061		57.75	12	5.5 *		7.2 *	11.6
123005	12-30	1115		2.8						1.724	1.677	1.309		1.50		13.1 *		4.9 *	
Broad Creek - Station 6																			
68051610	5-16	1030		19	19					1.641		.355	1.709	3.00	16	1.33	.91	13.24	
061009	6-10	1450		26.5		16				.906	1.66	.527	.675	58.50	12	7.6 *		1.0 *	
2509	6-24	1425		28.4		20				1.017	1.513	.566	1.279	8.25	18				
070909	7-08			28.7		22				1.302	2.741	.491	1.356	58.50	15	4.5 *		NR *	
2209	7-22	1500		30.4		24				1.115	3.529	.366	2.096		5.6	3.4 *		4.6 *	
080609	8-05			29.7		14					1.383	1.794	.256	181.50		5.0 *		15.3 *	
1909	8-19	1432		28						1.275	2.190	1.380	.517	56.25	10.5				

* Analysis run by the joint FWPCA-DC Pilot Plant
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Broad Creek - Station 6 - continued																			
68082004	8-20	0845	Surface	27.3		12	6.95	46,000	9,300					139.50					11.2
			15	27.3												2.32	6.16		
19		1625	Surface	28.6		15	6.9	15,000	7,500	1.152	2.506	1.090	.974	69.00					10.25
			16	27.3												1.45	6.70		
29		2335	Surface					93,000	15,000					49.50					8.6
			12	27.5												3.02	9.96		
2104	8-21	1000	Surface	26.3		15		24,000	9,300					59.50					10.5
			16	28.8												2.69	6.04		
19		1645	Surface	28.1				46,000	43,000	2.192	2.769	.715	.974	105.00					9.8
			25	27.9												4.70	7.10		
29		2335	Surface					9,300	4,300					78.75					8.3
			16													4.62	10.98		
2204	8-22	0930	Surface	28		13		4,300	4,300					137.25					10.5
			15													4.78	5.80		
19		1650	Surface	28.8		14		9,300	4,300		2.917	.688	.704	91.50					11.3
			15	28.1												4.97	8.08		
29		2325	Surface	27.5				9,300	2,100					93.75					10.4
			16	28												5.16	8.06		
091009	9-09	1455		26.5						2.922	2.305	2.003		59.25	12				
2409	9-23	1440		27.5						3.332	1.659	.648		60.00	4.2	3.6 *		10.0 *	7.6
100809	10-07	1501		19.7						3.170	2.837	2.301		55.50		2.4 *		9.9 *	
110404	11-04	1120		15						1.484	2.623	.060		80.25	14	5.9 *		5.9 *	16.1
123004	12-30	1050		2.6						1.513	1.386	.983		ND		13.0 *		4.1 *	
Piscataway Creek - Station 7																			
68051510	5-15	1500		19.5	19					1.505	2.27	.344	1.669	18.00	13	1.39	1.65	3.80	
061008	6-10	1422		26.6		18				.589	LA	.547	.625	81.75	18	6.9 *		3.8 *	
2508	6-24	1400		27.1		23				1.120	1.800	LA	1.401	4.50	14				
070908	7-08			28.7		22				1.022	2.503	.470	1.246	28.50	18	4.2 *		NR *	
2208	7-22	1422		30.4		20				.788	1.762	1.620	.235		11	4.8 *		7.4 *	
080608	8-05			29.5		15				1.465	1.290	1.756	.066	148.50		5.0 *		12.1 *	
1908	8-19	1345		28						1.091	1.933	1.437	.080	73.50	12				

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident
ND Not detectable
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Piscataway Creek - Station 7 - continued																			
68082003	8-20	0830	Surface	27.1		12	7.05	910	360					123.00					12.1
			15	27.1												4.19		10.42	
18		1610	Surface	28.6		12	7.4	360	360	9.57	1.963	1.013		113.25					11.2
			27	27.												3.33		8.26	
28		2315	Surface	28				4,300	2,300					86.25					12.0
			25													6.87		11.48	
2103	8-21	0945	Surface	27.5		15		4,300	2,300					57.75					11.9
			27	28.5												3.65		6.20	
18		1630	Surface	28.1		12		230	230		2.750	.910	.007	168.75					12.1
			27	27.9												8.94		8.08	
28		2315	Surface	27.5				3,900	910					129.75					10.6
			27	28												4.66		8.06	
2203	8-22	0915	Surface	27		24		910	910					163.75					11.2
			26													4.83		8.26	
18		1630	Surface	28.1		12		230	230		2.750	.910	.007	168.75					12.1
			25	27.9												8.94		8.08	
28		2315	Surface					24,000	1,500					329.25					11.7
			27													5.95		12.12	
091008	9-09	1420		26.1						1.033	2.439	2.118		73.50	16				
2408	9-23	1415		26						2.502	.976	1.207		84.75	4.9	3.3 *		8.4 *	7.25
100808	10-07	1440		19.3						2.064	1.283	2.713		81.00		4.1 *		6.2 *	
110403	11-04	1045		14.1						2.455	1.423	.155		96.00	16	8.4 *		5.6 *	15.2
123003	12-30	1030		3.2						2.882	2.380	.833		ND		10.6 *		4.6 *	
Dogue Creek - Station 8																			
68051509	5-15	1500		19	18.5					1.298	1.24	.422	1.625	18.00	16	2.12	2.25	3.90	
061007	6-10	1355		26.6		22				.531	1.08	.531	.425	42.00	16	6.6 *		3.2 *	
2507	6-24	1335		26.7		23				.724	1.660	.418	1.020	84.75	12				
070907	7-08			28.9		20				.717	LA	1.00	.809	72.75	15	5.4 *		NR *	
2207	7-22	1352		30.3		17				.989	1.093	1.182	ND		11	7.6 *		6.0 *	
080607	8-05			29.9		12					1.549	.659	.417	168.00		7.5 *		10.7 *	
1907	8-19	1315		28						.668	1.761	.767	.394	58.50	16				

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident
ND Not detectable
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Dogue Creek - Station 8 - continued																			
68082002	8-20	0810	Surface	27		12	7.2	390	23					171.75					12.8
			15	26.8												5.32		8.32	
17		1555	Surface	28.2		18	7.2	91	23	.832	1.994	.580	.036	69.00					11.4
			15	27												4.36		6.94	
27		2300	Surface					230	23					18.75					10.1
			12	28												3.98		10.40	
2102	8-21	0930	Surface	27		12		430	150					53.25					14.5
			15	28.5												4.97		7.00	
17		1615	Surface	28.0				930	91	1.402	2.167	1.089	.145	55.50					7.65
			15	27.5												4.78		7.36	
27		2255	Surface					930	430					865.50					11.9
			15													6.53		11.06	
2202	8-22	0900	Surface	27		11		91	91					798.75					6.6
			15													6.13		8.20	
17		1615	Surface	28				930	91	1.402	2.167	1.089	.145	55.50					7.65
			14	27.5												4.78		7.36	
27		2300	Surface	27				430	230					89.25					12.3
			15	27												7.02		8.04	
091007	9-09	1355		26.2						1.310	1.789	1.154		107.25	25				
2407	9-23	1355		25.5						1.968	1.162	1.434		94.50	7	2.7 *		7.7 *	12.25
100807	10-07	1410		19.5						1.670	1.494	.995		114.75		7.9 *		4.7 *	
110402	11-04	1005		13.9						2.509	.971	.304		72.75	21	9.1 *		4.8 *	14.1
123002	12-30	1010		2.8						2.671	2.424	.783		3.00		10.8 *		4.6 *	
Hallowing Point - Station 9																			
68051508	5-15	1500		19	18					1.012	2.12	.450	1.244	26.25	19	3.58	3.66	4.42	
061006	6-10	1320		25.5		22				.348	1.12	.715	.350	75.75	17	7.5 *		3.0 *	
2506	6-24	1305		27.2		22				.697	1.767	.515	.610	75.75	17				
070906	7-08			29		22				.688	1.966	.718	.612	6.75	15	5.5 *		NR *	
2206	7-22	1310		30.2		16				1.004	1.221	.936	.037		12	7.7 *		5.2 *	
080606	8-05			29.8		17					1.728	.756	.190	198.00		7.5 *		9.7 *	
1906	8-19	1245		28						.618	1.755	.623	.364	69.75	14				

* Analysis run by the joint FWPCA-DC Pilot Plant
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
Hallowing Point - Station 9 - continued																			
68082001	8-20	0755	Surface	26.8		12		91	23					71.25					13.9
			15	26.7			7.3									5.80		9.36	
16		1540	Surface	27.6			7.1	930	230	.822	3.142	.033	.320	145.50					12.2
			17	26.9												7.09		7.30	
26		2240	Surface					91	23					60.75					9.4
			17	27												7.16		8.86	
2101	8-21	0910	Surface	27		12		73	23					67.50					14.25
			17	28												6.53		7.84	
16		1600	Surface	28.3				430	23	1.022	1.917	.247	.240	96.75					8.2
			17	27.8												9.25		7.94	
2		2235	Surface					91	91					165.00					11.1
			17													7.37		11.22	
220	8-22	0837	Surface	27		.5		930	930					9,510.00					7.5
			17													7.06		9.40	
16		1600	Surface	28.7		12		91	23		2.468	.237	.044	138.75					11.3
			17	27.6												7.32		8.26	
26		2245	Surface	27.5				91	23					129.75					11.1
			17	28												6.77		8.98	
091006	9-09	1320		25.9						.978	1.591	.748		88.50	26				
2406	9-23	1320								1.316	1.389	1.029		187.50	15	6.3 *		7.9 *	22.2
100806	10-07	1330		19.3						.830	1.181	1.019		2.25		7.9 *		4.1 *	
110401	11-04	0920		13.7						1.364	0	.190		51.75	22	9.1 *		4.0 *	13.6
123001	12-30	0930		2.5						2.763	2.475	.850		4.50		11.5 *		4.1 *	
Indian Head - Station 10																			
68051507	5-15	1500		19	18					.772	.73	.526	2.560	42.00	15	4.35	4.22	4.98	
061005	6-10	1250		24.5		22				.277	.90	.604	.225	23.25	20	7.6 *		3.6 *	
2505	6-24	1248		26		20				.548	1.393	.831	.395	85.50	17				
070905	7-08			28.5		23				.539	1.544	1.01	.248	28.50	19	7.2 *		NR *	
2205	7-22	1241		29.8		19				.848	1.192	.583	.029		12	6.9 *		2.3 *	
080605	8-05			29.8		17					1.463	.356	.212	137.25		6.7 *		6.4 *	
1905	8-19			27						.424	1.346	.690	.109	59.25	13				
2015	8-20	1520	Surface	28.1		24	6.9	75	91	.596	1.302	.595	.254	61.50					11.0
			22	26.9												5.12		8.34	
2115	8-21	1545	Surface	27.8				43	36	.772	2.000	.463	.174	115.50					11.8
			22	27.5												7.51		8.50	
2215	8-22	1550	Surface	29.4		20		93	93		1.865	.302	.110	103.50					9.9
			24.5	27.4												6.05		7.08	
091005	9-09	1252		25.8						.768	1.616	.510		97.50	17				
2405	9-23	1255		26.5						.989	.719	.986		64.50	8.5	7.7 *		5.3 *	11.9
100805	10-07	1300		19.5						.843	1.458	.622		83.25		8.1 *		4.2 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
NR No results

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chloro-phyll a µg/l	Tur-bidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
								Possum Point - Station 11											
68051506	5-15	1500		18.5	18					.467	.63	.676	1.025	11.25	19	5.67	5.63	4.38	
061004	6-10	1215		23.6		20				.376	.84	.629	.275	21.00	29	7.3 *		2.6 *	
2504	6-24	1220		25.7		25				.419	.787	.509	.445	63.75	14.9				
070904	7-08			30		25				.675	1.782	.718	.590	17.25	15	6.6 *		NR *	
2204	7-22	1210		29.4		10				.733	1.523	.507	ND		14	8.4 *		5.4 *	
080604	8-05			29.6		22					1.389	.363	.270	159.00		6.3 *		7.2 *	
1904	8-19	1155		27						.310	.991	.447	.583	42.75	10				
2014	8-20	1455	Surface	27.6		24	9.6	43	36	.307	.932	.274		33.00					6.9
			13	26.7												5.32		3.10	
2114	8-21	1522	Surface	27.8				43	36	.428	1.936	.351		75.00					8.9
			13	26.8												5.03		3.04	
2214	8-22	1530	Surface	28.7		36		39	72		1.558	.220	.059	80.25					6.6
			13	27												5.58		2.90	
091004	9-09	1215		25.3						.524	1.152	.174		57.00	15				
2404	9-23	1225		25						.682	1.186	.548		70.50	8	7.4 *		3.8 *	9.6
100804	10-07	1210		20						.386	.988	.248		16.50		7.7 *		2.1 *	
								Sandy Point - Station 12											
68051505	5-15	1500		18.5	17.5					.395	.70	.911	.857	6.00	10	6.37	6.50	1.45	
061003	6-10	1115		23.6		20				.365	.81	.712	.350	4.50	53	6.1 *		2.4 *	
2503	6-24	1150		27		30				.314	1.060	.668	.359	66.75	13				
070903	7-08			28		23				.306	1.082	.784	.372	48.00	12	5.9 *		NR *	
2203	7-22	1130		28.5		18				.528	.785	.649	.044		8.5	7.3 *		1.7 *	
080603	8-05			29.1		25					.710	.202	.599	63.00		7.6 *		2.5 *	
1903	8-19	1125		27						.276	.789	.108	.641	20.25	6.5				
2013	8-20	1440	Surface	27.6		36	9.9	43	36	.373	.901	.099	.036	27.75					6.0
			12	26.5												6.74		2.90	
2113	8-21	1505	Surface	28				43	91	.396	.917	.150	.291	81.00					5.8
			12	27.3												8.14		3.94	
2213	8-22	1515	Surface	28.6		37		23	I		1.615	.123	.117	45.75					6.1
			12	27.3												6.95		2.54	
091003	9-09	1130		25						.362	.678	.057		55.50	10.1				
2403	9-23	1150		24.5						1.468	8.695	.065		291.00	37	7.0 *		3.0 *	2006
100803	10-07	1135		19.5						.371	.747	.076		19.50		8.6 *		.9 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
ND Not detectable
NR No results
I Indeterminate

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN *	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chlorophyll a µg/l	Turbidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
								Smith Point - Station 13											
68051504	5-15	1500		18.5	17					.391	.75	.958	.443	5.25	13	7.18	6.91	1.22	
061002	6-10	1050		23.3		18				.360	.62	.775	.125	12.00	55	6.6 *		2.2 *	
2502	6-24	1125		26.2		28				.251	.820	.478	.237	19.50	10				
070902	7-08			28.2		24				.333	.973	.772	.343	18.00	14	6.0 *		NR *	
2202	7-22	1105		28.4		24				.705	1.233	.547	.066		8	9.2 *		2.9 *	
080602	8-05			29.2		26					.512	.168	.322	46.50		7.3 *		2.6 *	
1902	8-19	1055		27						.355	1.064	.006	.211	42.75	9.3				
2012	8-20	1425	Surface	28.4		30	10.4	43	23	.378	1.025	.024	.044	54.00					6.6
			11	26.6												7.35		3.28	
2112	8-21	1447	Surface	28				43	91	.383	1.199	.113	.16,	54.00					5.2
			11	27.3												8.14		3.14	
2212	8-22	1456	Surface	29.7		30		73	I		1.506	.087	.037	105.00					5.4
			11	27												6.60		2.18	
091002	9-09	1100		25						.515	.848	.113		34.50	17				
2402	9-23	1120		24						1.381	LA	.065		506.25	35	7.6 *		2.6 *	1387
100802	10-07	1107		19.5						.513	.922	.095		29.25		7.9 *		1.5 *	
								Maryland Point - Station 14											
68051503	5-15	1500		18	16.5					.410	.67	.800	.342	26.25	25	6.88	6.56	1.88	
061001	6-10	0955		23.5		16				.360	.87	.735	.725	3.75	24	5.3 *		1.6 *	
2501	6-24	1050		25.2		26				.543	1.327	.408	.675	9.75	10				
070901	7-08			27.4		29				.352	1.054	.783	.350	29.47	16	5.2 *		NR *	
2201	7-22	1015		28.2		30				.580	.430	.350	.110		6.5	7.0 *		1.3 *	
080601	8-05			28.4		24					.346	.089	.066	21.00		5.3 *		1.6 *	
1901	8-19	1015		26						.340	.856	.015	.335	36.75	7.4				
2011	8-20	1400	Surface	27.9		36	9.0	91	I	.374	.840	.030	.036	29.25					4.7
			9	26.6												5.02		2.46	
2111	8-21	1421	Surface	27.2				36	36	.376	.782	.052	.240	25.50					4.8
			9	26.8												6.10		3.92	
2211	8-22	1445	Surface	28.8		36		36	I		1.365	.031	.139	34.50					5.75
			14	26.8												5.74		2.68	
091001	9-09	1020		25.4						.477	.567	.206		4.50	8.1				
2401	9-23	1050		23.8						.475	.096	.097		58.50	6.9	7.2 *		1.5 *	11.1
100801	10-07	1025		19.8						.295	.524	.229		5.25		7.0 *		1.0 *	

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident
NR No results
I Indeterminate

Sample Number	Date Sample Taken	Time Sample Taken	Sample Depth Feet	Water Temp °C Top	Water Temp °C Bottom	Secchi Disk Inches	Field pH	Coliform MPN *	Fecal Coliform MPN	Total P mg/l PO_4	TKN mg/l N	NO_2+NO_3 mg/l NO_3-N	NH_3 mg/l	Chlorophyll a µg/l	Turbidity JTU	DO mg/l Top	DO mg/l Bottom	BOD mg/l	TOC * Initial
									Nanjemoy Creek - Station 15										
68051502	5-15	1500		17.5	16					.332	.77	.592	.291	3600	16	6.72	6.33	1.90	
									Potomac River 301 Bridge - Station 16										
68051501	5-15	1030		17	16					.183	.83	.341	.174	21.00	5.6	6.94	6.68	2.31	
091101	9-11	1310	Surface	23.5		54				.461	.424	.201		25.50		7.00		2.32	
02			25							.446	.151	.172		3.00		5.57		1.08	
									Kettle Bottom Shoals - Station 18										
68091103	9-11	1245	Surface	23		72				.419	.358	.041		14.25		7.67		2.03	
04			10							.361	.188	.044		17.25		6.10		1.75	
									Wicomico River - Station 19										
68091105	9-11	1230	Surface	24		72				.294	.321	.026		22.50		6.69		2.04	
06			12							.295	.261	.029		12.75		7.35		4.81	
									Kingcopisco Point - Station 20										
68091107	9-11	1205	Surface	23.5		72				.275	.248	.041		21.75		8.58		2.74	
08			9							.265	LA	.044		9.75		7.89		2.57	
									Ragged Point - Station 21										
68091101	9-11	1145	Surface	23.5		84				.226	.248	.003		9.75		8.02		1.77	
10			25							.196	.212	.005		9.00		6.58		1.40	
									Piney Point - Station 22										
68091111	9-11	1130	Surface	23.5		84				.381	.412	ND		51.75		8.65		4.56	
12			24							.207	.158	.008		5.25		5.28		1.59	
									Point Lookout - Station 23										
68091113	9-11	1055	Surface	24.5		108				.222	.242	ND		27.00		8.17		3.40	
14			35							.208	.333	.014		6.75		1.14		1.48	
									Smith Point - Station 24										
68091115	9-11	1030	Surface	24.5		144				.145	.206	ND		4.75		7.38		1.91	
16			15							.162	.436	.029		11.25		5.64		2.16	
									Point Lookout - Station 25										
68091117	9-11	1005	Surface	24.5		144				.106	.212	.012		6.00		7.64		1.81	
18			17							.116	.224	ND		12.75		7.41		1.88	

LA Laboratory accident
ND Not detectable
No sample for Station 17 - Range boat firing

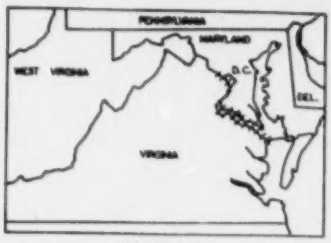
1968
CHESAPEAKE TECHNICAL SUPPORT LABORATORY
POTOMAC ESTUARY SURVEY
SEWAGE TREATMENT PLANTS

Sample Number	Date Sample Taken	Time Sample Taken	Total P mg/l PO_4 Influent	Total P mg/l PO_4 Effluent	TKN mg/l N Influent	TKN mg/l N Effluent	NH_3 mg/l Influent	NH_3 mg/l Effluent	BOD mg/l Influent	BOD mg/l Effluent	BOD mg/l * Influent	BOD mg/l * Effluent	Susp. Solids mg/l* Influent	Susp. Solids mg/l* Effluent	TOC * Initial	TOC * Effluent
							Alexandria STP									
68082037	8-19	24		28.201		23.796		13.967		63.6	132	53	145	54	54.4	
2136	8-20	Hr.	66.073	66.073	26.186	25.930		13.936			156	45	151	39	47.5	
2238	8-21	Comp.		29.482		5.353		1.254			176	44	150	40	45.75	
							Arlington STP									
68082036	8-19	24		29.076		20.710		12.964		30.6	204	19	217	36	25.7	
2137	8-20	Hr.	61.884	52.460	26.090	17.949		9.985			250	18	241	41	23.8	
2239	8-21	Comp.		31.551		21.090		11.584			162	18	182	48	22.7	
							Andrews Air Force Base STP #1									
68082236	8-21	24 Hr.	32.586	15.517	20.160	9.712		5.931				33		23	14.3	
							Andrews Air Force Base STP #4									
68082237	8-21	Comp.	43.551	24.413	21.186	5.673		LA				46+		21	13.0	
							Blue Plains STP									
68082038	8-19	24		19.060		15.833		11.823		27.6	147	24	158	90	30.0	
2138	8-20	Hr.	33.612	35.183	17.660	13.526		8.524			139	42	128	52	25.9	
2242	8-21	Comp.		19.241		17.019		8.717			133	36	198	30	39.4	
							Fairfax STP - Dogue Creek									
68082039	8-19	24	34.522	36.467	27.531	19.568		13.131		34.1	208	21	206	29	35.8	
2139	8-20	Hr.	67.120	66.073	29.808	19.968		11.976			243	41	219	32	27.3	
2243	8-21	Comp.		37.241		22.949		12.779			260	38	281	31	33.0	
							Fairfax STP - Little Hunting Creek									
68082040	8-19	24	42.302	40.357	29.321	29.259		16.474		44.6	235	31	182	36	41.8	
2140	8-20	Hr.	80.732	74.450	30.898	24.327		10.871			160	15	184	24	29.2	
2244	8-21	Comp.		5.689		24.551		14.318			293	48	169	34	36.2	
							Fairfax STP - Westgate									
68082041	8-19	24	34.911	33.063	26.944	LA		13.895		72.7	283	143	205	85	104.8	
2141	8-20	Hr.	63.979	62.931	28.430	29.744		10.835			293	160	219	140	101.0	
2245	8-21	Comp.		35.586		26.987		12.654			323	162	241	104	113.4	

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident

Sample Number	Date Sample Taken	Time Sample Taken	Total P mg/l PO_4 Influent	Total P mg/l PO_4 Effluent	TKN mg/l N Influent	TKN mg/l N Effluent	NH_3 mg/l Influent	NH_3 mg/l Effluent	BOD mg/l Influent	BOD mg/l Effluent	BOD mg/l * Influent	BOD mg/l * Effluent	Susp. Solids mg/l* Influent	Susp. Solids mg/l* Effluent	TOC * Initial	TOC * Effluent
							Fort Belvoir STP #1									
	8-19	24									260	38	260	20		
	8-20	Hr.									310	66	220	20		
6808224O	8-21	Comp.	12.931	8.999	19.071	4.744		9.501			150	14	100	20	20.2	
															15.4	
							Fort Belvoir STP #2									
	8-19	24									220	38	300	20		
	8-20	Hr.									300	26	320	20		
6808224l	8-21	Comp.	34.137	17.896	2.276	20.449		12.229			140	14	220	20	22.5	
															26.7	
							Pentagon STP									
	8-19	24									380	48	239	15		
	8-20	Hr.									210	18	136	5		
6808224G	8-21	Comp.	25.862	20.172	14.135	LA		9.480			160	20	167	3	23.4	
							Piscataway STP									
	8-19															
68082252	8-20	24	20.172	24.827	17.019	18.910		10.455								
2256	8-21	Hr.	18.620	23.275	13.899	16.855										
091616	9-15	Comp.	37.416		25.570		14.21		> 153.2							
17	9-15			26.057		16.171		13.92		24.0						

* Analysis run by the joint FWPCA-DC Pilot Plant
LA Laboratory accident



LOCATION MAP

N
LEGEND
MAJOR WASTE TREATMENT PLANTS
GAGING STATION POTOMAC RIVER at WASHINGTON, D.C.
A DISTRICT OF COLUMBIA
B ARLINGTON COUNTY
C ALEXANDRIA SANITARY AUTHORITY
D FAIRFAX COUNTY - WESTGATE PLANT
E FAIRFAX COUNTY - LITTLE HUNTING CREEK PLANT
F FAIRFAX COUNTY - DOGUE CREEK PLANT
G WASHINGTON SUBURB SANITARY COMMISSION - PISCATAWAY
H ANDREWS AIR FORCE BASE - PLANTS #1 and #4
I FORT BELVOIR - PLANTS #1 and #2
J PENTAGON
5 0 5 10
SCALE IN MILES

POTOMAC ESTUARY